HA 4/16/02

23. Method of claim ~~18~~ 21, further comprising

providing heating means for such primary engine coolant, and

providing heating means for such primary engine lube-oil.

REMARKS

Claims 1 through 20 are pending in the application and have been rejected. Claim 1, the broadest apparatus claim, has been rewritten to more clearly claim the subject matter that the inventor claims as his own. Claims 18-20 have been cancelled and replaced by new methodology claims 21-23. The Office Action rejections are summarized as follows.

Rejections under 35 U.S.C. § 103(a) include the following:

a. Claims 1-10, 12-14, and 18-20 are rejected as being unpatentable over Mayfield, Jr., *et al.* in view of Fujikawa, *et al.*;

b. Claims 11 and 15 are rejected as being unpatentable over Mayfield, Jr., *et al.* in view in view of Fujikawa, *et al.* and further in view of Stein;

c. Claims 16 and 17 are rejected as being unpatentable over Mayfield, Jr., *et al.* in view in view of Fujikawa, *et al.* and further in view of Rusconi.

In addition, the draftsperson objected to certain informalities in the drawings submitted with the application. Corrected drawings were submitted under separate cover dated April 2, 2001.

Key aspects of the present invention are briefly summarized before considering the rejections. An object of the present invention is to provide a reliable auxiliary power supply system to allow for shutting down a primary diesel engine in all weather conditions. Another object is to provide a system that will shut down a primary engine after a certain predetermined period of time, regardless of ambient temperature, and start an auxiliary power unit, if necessary. The auxiliary power unit can supply heating to the primary engine and electrical power to peripheral systems and is designed for operation in warm weather as well as cold weather environments.

As amended, claim 1, the broadest apparatus claim, recites a system for automatically shutting down a primary engine, while providing an auxiliary power supply. The recited system

includes a secondary engine; a control means with a timer for determining the time that such primary engine may be idling and such control means shuts down such primary engine following a predetermined period of time of idling. Such control means can also automatically start such secondary engine. With this combination of elements, the claimed system enables automatic control of the primary engine, thus avoiding unnecessary operation of such primary engine to provide heating or cooling in all environmental conditions while reducing exhaust emissions and saving fuel.

As amended, Claims 21-23 recite a method of controlling operation of a primary engine and a secondary engine. The method includes monitoring operation of such primary engine, automatically shutting down such primary engine after a predetermined time of idling and operating such secondary engine in response to a predetermined condition of such primary engine depending on a selected mode of operation.

None of the patents cited in the subject Office Action disclose or suggest each of the foregoing elements. In particular, the cited patents do not describe a system that includes control means with a timer for automatic shutdown of the primary engine regardless of ambient conditions.

The Rejections under 35 U.S.C. §103(a) Obviousness

To establish a *prima facie* case of obviousness, there must be some teaching, suggestion, or motivation, either in the references themselves or in a convincing line of reasoning with knowledge generally available to one of ordinary skill in the art, to combine reference teachings. *See* Manual of Patent Examining Procedure (MPEP) §2144; *Ex parte Clapp*, 227 USPQ 972 (Bd. Pat. App. & Inter. 1985).

(1) Claims 1-10, 12-14, and 18-20 are rejected as being unpatentable over Mayfield, Jr., *et al.* in view of Fujikawa, *et al.*

The Examiner asserts that Mayfield, Jr., *et al.* discloses all the limitations substantially claimed in the present invention, and that when combined with the Fujikawa, *et al.* invention, which discloses a secondary engine coupled to an electrical generator and battery, renders the claims unpatentable. The Examiner states that it would have been obvious to one of ordinary skill in the art

to combine the battery and generator taught by Fujikawa, *et al.* with the engine generator system as taught by Mayfield, Jr., *et al.* Applicant respectfully traverses the rejection.

In particular, Mayfield, Jr., *et al.* does not teach an engine idle timer that determines if the primary engine has been idled for a predetermined period of inactivity as disclosed in the present application at page 18, lines 11-12. Indeed, the starting condition for the Mayfield, Jr., *et al.* invention, as recited at Column 2, lines 57-58 is "[w]hen the primary engine is shut down." Moreover, the first claim in Mayfield, Jr., *et al.*, as recited at Column 5, line 9, is specifically limited to "after the primary engine is shut off." Although Fujikawa, *et al.* teaches a secondary engine coupled to a generator, it does not teach any engine controller. Nothing in Mayfield, Jr., *et al.* separately, or in combination with Fujikawa, *et al.*, suggests that the controller interacts with the primary engine in any manner.

Therefore, Applicant respectfully traverses the rejection because the combination of references does not teach or suggest all of the claim limitations of the present invention.

The Examiner states that the motivation for combining these references is for cold weather starting of an engine. Applicant respectfully points out that an object of the present invention is to provide a reliable auxiliary power supply system to allow for shutting down a primary diesel engine in all weather conditions.

(2) Claims 11 and 15 are rejected as being unpatentable over Mayfield, Jr., *et al.* in view in view of Fujikawa, *et al.* and further in view of Stein.

The Examiner asserts that Mayfield, Jr., *et al.* when combined with Fujikawa, *et al.* and further in view of Stein, which discloses an electrical heater, discloses all the limitations substantially claimed in the present invention and renders the claims unpatentable. The Examiner states that it would have been obvious to one of ordinary skill in the art to combine Fujikawa, *et al.* with Mayfield, Jr., *et al.*, and to replace heater by electrical heater as taught by Stein. Applicant respectfully traverses the rejection.

As described above, the combination of Mayfield, Jr., *et al.* and Fujikawa, *et al.* do not teach a controller that interacts with the primary engine. Furthermore, Stein discloses "heat exchanging

means having concentrically positioned separate coolant and lubricant chambers" (Column 7, lines 33-34) and a single electrical heater. In the present invention, there are multiple heater elements that serve two purposes. As disclosed in the present application at page 13, lines 3-6, "[o]ne purpose is to provide immersion heat for the coolant loop 60 and lube-oil loop 75. The second purpose is to load the secondary engine 45 through generator 48 and transfer the heat generated by this load through heat exchanger 57 into primary engine coolant in loop 60."

Applicant claims multiple heaters and heat exchanger. Therefore, Applicant respectfully traverses the rejection because the combination of references does not teach or suggest all of the claim limitations of the present invention.

The Examiner states that the motivation for combining these references is for cold weather starting of an engine. Applicant respectfully points out that an object of the present invention is to provide a reliable auxiliary power supply system to allow for shutting down a primary diesel engine in all weather conditions, and further that such heat exchanger is necessary for warm weather operation of the claimed system.

(3) Claims 16 and 17 are rejected as being unpatentable over Mayfield, Jr., *et al.* in view in view of Fujikawa, *et al.* and further in view of Rusconi.

The Examiner asserts that Mayfield, Jr., *et al.* when combined with Fujikawa, *et al.* and further in view of Rusconi, which discloses a drain valve for draining the cooling system, discloses all the limitations substantially claimed in the present invention and renders the claims unpatentable. The Examiner states that it would have been obvious to one of ordinary skill in the art to combine Fujikawa, *et al.* with Mayfield, Jr., *et al.*, and to provide engine with a drain valve for draining the cooling system as taught by Rusconi. Applicant respectfully traverses the rejection.

As described above, the combination of Mayfield, Jr., *et al.* and Fujikawa, *et al.* do not teach a controller that interacts with the primary engine. Furthermore, Rusconi discloses a drain valve, which is quite different from the remotely operable drain valve as claimed by Applicant. The control means to operate such remotely operable drain valve is not disclosed by Rusconi. Therefore,

Applicant respectfully traverses the rejection because the combination of references does not teach or suggest all of the claim limitations of the present invention.

The Examiner states that the motivation for combining these references is for cold weather starting of an engine. Applicant respectfully points out that an object of the present invention is to provide a reliable auxiliary power supply system to allow for shutting down a primary diesel engine in all weather conditions, and that there is no suggestion that the control system disclosed by Rusconi affects the drain valve.

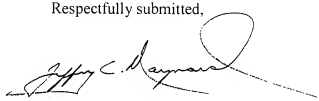
CONCLUSION

The claims of the present invention have been rewritten to include the element of a timer with the control means. Support for these amendments can be found in the Specification on page 3, lines 12-14; page 18, lines 11-12; and page 19, lines 7-9. The revisions emphasize that the control means interacts with the engine idle timer to automatically shut down the primary engine after a predetermined time of idling. That is, the control means controls both the primary engine, to cause shutdown, and the secondary engine, to start up under predetermined conditions. Mayfield, Jr., *et al.* does not disclose shutting down the primary engine. Rather, Mayfield, Jr., *et al.* is concerned with starting a secondary engine after the primary engine is already shut down. Applicant respectfully submits that Mayfield, Jr., *et al.* does not disclose the elements of a timer with the disclosed controller. Therefore, Mayfield, Jr., *et al.* in combination with any of the cited references does not does not teach or suggest all of the claim limitations of the present invention.

To establish prima facie obviousness, all the claim limitations must be taught or suggested by the prior art references when combined. *See* MPEP §2143.03; *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Further, there must be some teaching, suggestion, or motivation to combine reference teachings. *See* MPEP §2143.01; *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Applicant has made a diligent effort to place the claims in condition for allowance. Accordingly, a Notice of Allowability is respectfully requested. However, if the Examiner is of the opinion that the present application is not in condition for allowance, Applicant respectfully requests that the Examiner contact Applicant's attorney at the telephone number listed below so that additional changes may be discussed.

Respectfully submitted,



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CERTIFICATE OF MAILING

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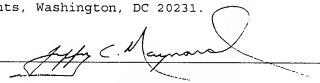
By: 

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Date: January 25, 2002